Sexually transmitted diseases in northern Nigeria

Five years' experience in a university teaching hospital clinic

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SUMMARY Between 1977 and 1981, 3089 patients attended the sexually transmitted diseases (STD) clinic in Zaria, northern Nigeria. The male-to-female ratio of attenders was 6:1. Postpubertal gonorrhoea accounted for 28·1% of cases, non-specific genital infections for 22·4%, and syphilis for 1·2%. Illiteracy, polygamy, the purdah system, widespread prostitution, and inadequate facilities are factors aiding the spread of these diseases in northern Nigeria.

Introduction

Despite their widespread economic and social impact there is still little information on the prevalence of the sexually transmitted diseases (STDs) in the developing countries.¹ Even in Nigeria, with its vast human and material resources, up-to-date reports on these diseases are available from the southern part of the country only.¹⁻³ In northern Nigeria information on STDs is scanty.⁴⁻⁷

The metropolis of Zaria, with a population of about half a million people, is an important strategic town in northern Nigeria. It used to be the capital of one of the famous seven Hausa states. For many years it had the largest number of institutions of higher learning in northern Nigeria, including the largest university in Nigeria, and until recently the only university in the whole of northern Nigeria. Zaria is 150 kilometres south of the international air terminus, Kano, and is on the major road and rail routes that link the north with the southern part of Nigeria. The Ahmadu Bello University Teaching Hospital (ABUTH) and a State-owned health centre are the only large medical centres providing free medical services to the population, about 60% of which is poor and semi-literate. Not surprisingly, these centres are often overcrowded and the facilities overstrained. Consequently, people are forced to seek medical attention from uninformed drug sellers, native doctors, and quacks or even to resort to self-medication.

In Zaria and probably in most cities in Nigeria besides malaria and gastrointestinal diseases genital disorders (mainly STDs) are the complaints for which most adolescents and adults seek medical help. Regrettably the special treatment clinic (STC) at Ahmadu Bello University Teaching Hospital, Zaria, is the only clinic in the whole of northern Nigeria to which patients with STDs may be referred. We report our experience of STDs within a five-year period from January 1977 to December 1981.

Patients and methods

STUDY POPULATION

The study population comprised 3089 patients attending the special treatment clinic at this hospital between January 1977 and December 1981. Most of these patients were referred from different units within the hospital complex and by their sexual contacts. Some patients were referred to the clinic by doctors and nurses working in and outside Zaria, and some learnt of the clinic from miscellaneous sources and came of their own accord; this last group included patients from all parts of Nigeria but mainly from northern Nigeria.

MICROBIOLOGICAL TECHNIQUES

Standard methods of history-taking, physical examination, and investigations of patients with sexually transmitted diseases were adopted. Samples of urethral discharge in men were collected with a sterile 4 mm wire loop or when available a sterile cottonwool swab. Gram-stained smears were prepared and a culture plate inoculated. From women cervical specimens were obtained under direct vision, and Gram-stained smears and cultures were

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prepared. Prepubertal girls had specimens for microscopy and culture collected from the vulva, vagina, urethra, and rectum. Plates of chocolate agar and Thayer-Martin (Oxoid) media were inoculated with anogenital material and incubated at 36°C in a candle extinction jar for 24 to 48 hours. *Neisseria gonorrhoeae* was identified by the typical colonial morphology, reaction to Gram-staining, positive oxidase test, sugar fermentation (depending on the availability of reagents), coagglutination (Phadebact gonococcus test), or by the congo red and manganous chloride disc.⁸

The sensitivity of isolates was tested by the agar diffusion method on chocolate agar plates using Oxoid multidiscs with standard antibiotic concentrations. Penicillinase production was detected by the starch paper method.⁹ Initial strains producing penicillinase (PPNG) were confirmed by Dr T O Odugbemi (Lagos University Teaching Hospital). In addition, stools were examined for parasitic infection.

Infection with *Candida* spp was diagnosed by culture on chocolate agar or Sabouraud's agar or both and by microscopy of a saline mount and Gram-stained smear of material from the lower vagina. *Trichomonas vaginalis* was detected by microscopy of a saline mount only. Routine urine microscopy, and when indicated culture for eubacteria, was performed in all patients. Dark field and Gram-stained smear microscopy and culture for *Haemophilus ducreyi* on chocolate agar were performed on all genital ulcers. Laboratory facilities for the diagnosis of lymphogranuloma venereum (LGV), genital herpes, and molluscum contagiosum were not available. The Venereal Diseases Research Laboratory (VDRL) test was performed on serum from each patient; each serum which gave a positive result was tested by the *Treponema pallidum* haemagglutination (TPHA) test.

Results

Three thousand and eighty-nine patients (2653 (85.9%) men and 436 (14.1%) women) were seen during the five-year period. This represents a male-to-female ratio of 6:1. (Because of unavoidable circumstances the clinic did not open on several occasions for a total of 20 months within the five-year period.) The peak age range for men was 20-24 years and for women 15-19 years (table I).

Postpubertal gonorrhoea and non-specific genital infections were the two conditions seen most frequently in Zaria, each accounting for 28.1% and 22.4% of cases respectively (table II). Prostitutes and casual sexual contacts were the sources of infection in 40% and 34.2% of cases respectively

TABLE I Age distribution

Age (years)	No of men	No of women	Total (%)
0-4	2	2	4 (0.1)
5-9		10	10 (0.3)
10-14	18	15	33 (1.1)
15-19	421	115	536 (17.3)
20-24	1032	107	1139 (36.9)
25-29	653	95	748 (24.2)
30-34	284	43	327 (10.6)
35-39	126	18	144 (4.7)
≥40	90	24	114 (3.7)
Uncertain	27	7	34 (1.1)
Total	2653	435	3089 (100.0)

Male: female ratio = 6:1

TABLE II Distribution of diagnoses

Diagnosis	No of men	No of women	Total (%)
Non-specific genital infections	698	28	726 (22.4)
Postpubertal gonorrhoea	861	49	910 (28.1)
Prepubertal gonorrhoea	1	7	8 (0.03)
Candidosis	28	276	304 (9.4)
Trichomoniasis	13	48	61 (1.9)
Chancroid	78	16	94 (2.9)
Lymphogranuloma venereum	59	5	64 (2.0)
Syphilis			
Primary	4	10	39 (1.2)
Latent	26	8	
Genital warts	16	12	28 (0.9)
Herpes genitalis	31	2	33 (1.1)
Schistosomiasis	76	3	79 (2.4)
Urinary tract infection	81	2	83 (2.6)
Tinea cruris	82	17	99 (3.1)
Venereophobia	67	1	68 (2.1)
Others	468	99	567 (17.5)
Mixed infections	55	19	74 (2.3)

TABLE III Sources of infection

Source	No of patients (%)
Spouse	390 (12.6)
Casual or unknown contact or both	1057 (34.2)
Prostitute	1236 (40.0)
Regular partner	380 (12.3)
Never had sexual contact	26 (0.9)
Total	3089 (100.0)

TABLE IV Distribution of occupations

Occupation	No of patients (%)
Students	908 (29.4)
Housewives	377 (12.2)
Teachers	226 (7.3)
Traders	165 (5.3)
Farmers	293 (9.5)
Others	1120 (36.3)
Total	3089 (100.0)

(table III). Of the patients seen, 29.4% were students; most were studying for O level and A level examinations but some were university students (table IV).

PENICILLINASE-PRODUCING *NEISSERIA GONORRHOEA* (PPNG)

Seven strains of PPNG were isolated within the five-year period, all in 1981. The first two isolates were detected in March 1981 and have been reported elsewhere.¹⁰

PARASITOLOGICAL EXAMINATION

Microscopical examination of anorectal swabs in prepubertal girls was performed to eliminate possible infection with *Enterobius vermicularis* (thread worm), which is not an uncommon cause of vulvovaginitis in young girls.^{11 12} Parasites were not seen in the material from our patients.

Discussion

Of the patients in this study, 61% were aged between 20 and 29 years compared with 51% and 40% seen in Ibadan and Lagos respectively.^{2 3} The difference was probably because most of our patients (29.4%) were students. The male-to-female ratio of 6:1 illustrates the negative effect of sociocultural factors on the control of STD in northern Nigeria. The religious practices of polygamy and purdah place some restrictions on women but do not restrict men from promiscuous sexual behaviour. Consequently, the men often infect their wives. These infections often result in marital disharmony and divorce; the unfortunate women often resort to prostitution. Since the purdah system prevents women from leaving their homes in the day, clinics held at night might be a helpful alternative. Unfortunately, too few workers and security and transport problems at night are obstacles to this approach.

The high male-to-female ratio suggests that homosexual practices may be common in northern Nigeria. All our patients were routinely asked about their sexual orientation, but none reported any homosexual contact. The higher incidence of postpubertal gonorrhoea compared with that of non-specific genital infections disagrees with reports from most parts of Africa¹ but agrees with those in Zimbabwe.¹³ A possible explanation may be that most of our patients were well informed students who sought advice early rather than treat themselves, which could lead to elimination or suppression of gonococcal infection.

The patients with schistosomiasis (*Schistosoma haematobium*) in this study presented with either urethral discharge or dysuria or both, thus mimicking gonorrhoea. Interestingly, most of these patients initially had haematuria, which they ignored until they had had sexual contact. Most of these patients came from areas endemic for schistosomiasis where haematuria was believed to be a physiological

process in young boys and girls. The dangers associated with this "pseudo-gonorrheal disease" have already been reported.¹⁴

Syphilis was diagnosed in only 1.2% of patients compared with 2.5% reported from Ibadan and 1.4% from Lagos.^{2 3} Syphilis seems to be more common in northern than in southern Nigeria because of the cross protection by yaws in the south (Osoba, personal communication). Because most of our patients were seen early, the clinical features of syphilis were possibly suppressed by routine treatment for gonorrhoea. None the less, this issue needs reappraisal in the light of the declining protection from yaws in southern Nigeria.

Prostitutes and casual contacts were the main sources of infection in northern Nigeria. A recent survey by one of us (Bello, unpublished data) shows that college girls, who form the majority of casual contacts, had the largest reservoir of asymptomatic gonorrhoea in Zaria. The epidemiological importance of, and control strategies for, these groups in developing countries have recently been highlighted by Plorde.¹⁵

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